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APPLICATION NO.	FILING DATE		FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
09/667,097	09/21	/2000	Kumi Jinzenji	10746/21 6354		
26646	7590	11/06/2002				
KENYON &		EXAMINER				
ONE BROAD NEW YORK,				GOOD JOHNSON, MOTILEWA		
				ART UNIT	PAPER NUMBER	
				2672		
				DATE MAILED: 11/06/2002		

Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	Applicant(s)	1.
	09/667,097	JINZENJI ET AL.	
Office Action Summary	Examiner	Art Unit	
	Motilewa A. Good-Johnson	2672	
The MAILING DATE of this communication app Period for Reply	pears on the cover sheet with the o	correspondence address	
A SHORTENED STATUTORY PERIOD FOR REPLY THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.1: after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply - If NO period for reply is specified above, the maximum statutory period v - Failure to reply within the set or extended period for reply will, by statute - Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b). Status	36(a). In no event, however, may a reply be tir y within the statutory minimum of thirty (30) day will apply and will expire SIX (6) MONTHS from , cause the application to become ABANDONE	mely filed ys will be considered timely. It the mailing date of this communication (35 U.S.C. § 133).	1 .
1) Responsive to communication(s) filed on 21.5	<u>September 2000</u> .		
2a) ☐ This action is FINAL . 2b) ☑ Th	is action is non-final.		
3) Since this application is in condition for allowa			is
closed in accordance with the practice under Disposition of Claims	Ex parie Quayle, 1935 C.D. 11, 4	453 U.G. 213.	
4)⊠ Claim(s) <u>1-30</u> is/are pending in the application	ı .		
4a) Of the above claim(s) is/are withdraw	wn from consideration.		
5) Claim(s) is/are allowed.			
6)⊠ Claim(s) <u>1-18,20 and 22-30</u> is/are rejected.			
7)⊠ Claim(s) <u>17,19 and 21</u> is/are objected to.			
8) Claim(s) are subject to restriction and/o	r election requirement.		
Application Papers			
9) The specification is objected to by the Examine	_		
10) The drawing(s) filed on is/are: a) acception	· · · · · · · · · · · · · · · · · · ·		
Applicant may not request that any objection to the 11) The proposed drawing correction filed on			
If approved, corrected drawings are required in rep		oved by the Examiner.	
12) The oath or declaration is objected to by the Ex	•		
Priority under 35 U.S.C. §§ 119 and 120			
13)⊠ Acknowledgment is made of a claim for foreign	n priority under 35 U.S.C. & 119/a	a)-(d) or (f).	
a)⊠ All b)□ Some * c)□ None of:	, priority arrable of the color 3 1 10(0	-, (-, -, (-, -	
1.⊠ Certified copies of the priority document	s have been received.		
2. Certified copies of the priority document		ion No	
3. Copies of the certified copies of the prior application from the International Bu * See the attached detailed Office action for a list	rity documents have been receivereau (PCT Rule 17.2(a)).	ed in this National Stage	
14) Acknowledgment is made of a claim for domesti	•		on).
a) The translation of the foreign language pro	ovisional application has been rec	ceived.	•
Attachment(s)			
1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2	5) 🔲 Notice of Informal	y (PTO-413) Paper No(s) Patent Application (PTO-152)	

1

Art Unit: 2672

DETAILED ACTION

- 1. This office action is responsive to the following communications: Application, filed on 09/21/2000; IDS, paper #2, filed on 09/21/2000.
- 2. Claims 1-30 are pending in this application. Claims 1, 3, 5, 7, 9, 10, 12, 13, 15, 16, 18, 20, 22, 24, 25, 27, 28 and 30 are independent claims. No claims have yet been amended.
- 3. The present title of this application is "Method for separating background sprite and foreground object and method for extracting segmentation mask and the apparatus" (as originally filed).

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 2672

5. Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Crinon et al., U.S. Patent Number 6,249,613, "Mosaic Generation and Sprite-Based Coding with Automatic Foreground and Background Separation", class 382/236.

As per independent claim 1, a foreground object and background sprite separation and extraction method for extracting . . . comprising the steps of: obtaining a global motion for transforming a coordinate system between a reference . . . ; mapping an original image corresponding to said frame into a reference coordinate system . . . ; generating a provisional sprite . . . ; cutting out a first image . . . using said global motion; obtaining a difference image between said first image and said original image; extracting a foreground object image . . . and extracting other region as a background image; mapping said background image . . . Crinon discloses segmenting foreground and background objects, coding in global motion parameters, col. 2, lines 37-55. Crinon further discloses reconstructing a sprite for isolating the object having the most motion in the video sequence, col. 3, lines 23-35.

With respect to dependent claim 2, cutting out a second image from said background sprite . . .; obtaining a difference image . . .; extracting a foreground object image as a region in said difference . . . Crinon discloses in figure 8.

As per independent claims 3 and 5, they are rejected based upon similar rational as above independent claim 1 respectively.

With respect to dependent claims 4 and 6, they are rejected based upon similar rational as above dependent claim 2.

Art Unit: 2672

As per independent claim 7, a segmentation mask extraction method . . . comprising the steps of: receiving a foreground mask image . . .; providing a first value as an alpha value . . . in each of the first macro-blocks . . .; providing said first value as said alpha value to all shape pixels in each of second macro-blocks . . .; and outputting said segmentation mask. Crinon discloses first and second macro-blocks tagged as foreground and background objects, figure 9, col. 9, lines 42-67 and in col. 10, lines 1-30.

With respect to dependent claim 8, receiving each of third macro-blocks . . . as said background part; and providing said first value to said third macro-block . . . Crinon discloses a binary segmentation map and further using a neighborhood of macro-blocks around a macro-block of interest, col. 9, lines 20-28.

As per independent claim 9, a segmentation mask extraction . . . comprising the steps of: receiving a foreground mask image; generating a number map . . . ; initializing a foreground map; providing a predetermined value to each of positions in said foreground map . . . ; providing said predetermined value to each of position in said foreground map . . . ; and generating said segmentation mask . . . Crinon discloses generating macro-blocks having multiple local motion type vectors and further having macro-blocks as foreground only, background only, and foreground or background, col. 2, lines 37-67.

As per independent claims 10 and 13, they are rejected based upon similar rational as above independent claim 7.

Art Unit: 2672

With respect to dependent claims 11 and 14, they are rejected based upon similar rational as above dependent claim 8.

As per independent claim 12 and 15, they are rejected based upon similar rational as above independent claim 9, respectively.

Claim Rejections - 35 USC § 103

- 6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 7. Claims 16, 18, 20, 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, U.S. Patent Number 6,256,409, "Method for Determining a Correlation between Images using Multi-Element Image Descriptors", class 382/170.

As per independent claim 16, a segmentation mask extraction method . . . comprising the steps of: obtaining said difference image by calculating an absolute difference . . . initializing an energy map for each macro-block of said difference image; calculating energy values for said each macro-block; obtaining an average of said energy values; calculating a foreground ratio . . . ; and generating said segmentation mask . . . Wang discloses an energy map, feature vector or image descriptor to describe multi-band images or the correlation between a first image and a second image, col. 5, lines 12-59. However, it is noted that Wang fails to disclose representing

Art Unit: 2672

an energy map as a macro-block for each different image. It would have been obvious to one of ordinary skill in the art at the time of the invention to include macro-blocks as image descriptors in the invention of Wang to further describe the correlation of the first and second images for masking or performing image matching.

As per independent claims 18 and 20, they are rejected based upon similar rational as above independent claim 16.

As per independent claim 22, a segmentation mask extraction method for extracting a segmentation mask . . . comprising: a first step of regarding each of first macro-blocks as the foreground when an energy value of said first macro-block which is obtained . . . ; a second step of regarding each of second macro-blocks as the foreground . . . Wang discloses an energy map, feature vector or image descriptor to describe multi-band images or the correlation of a first image and a second image. However, it is noted that Wang fails to disclose representing an energy map as a macro-block for each different image. It would have been obvious to one of ordinary skill in the art at the time of the invention to include macro-blocks as the image descriptors disclosed in Wang to further describe the correlation of the first and second images for masking or performing image matching.

With respect to dependent claim 23, iterating said second step for predetermined times. Wang further discloses re-processing and re-examining the image descriptors, col. 21, lines 4-17.

As per independent claim 24, Wang further discloses comparing the image descriptors and categorizing the different image descriptors and belonging to a different



Art Unit: 2672

image category type, col. 17, lines 32-67. However, it is noted that Wang fails to disclose representing an energy map as a macro-block for each different image. It would have been obvious to one of ordinary skill in the art at the time of the invention to include macro-blocks as the image descriptors disclosed in Wang to describe the correlation of the first and second images for masking or performing image matching.

As per independent claims 25 and 28, they are rejected based upon similar rational as above independent claim 22.

With respect to dependent claims 26 and 29, they are rejected based upon similar rational as above dependent claim 23.

As per independent claims 27 and 30, they are rejected based upon similar rational as above independent claim 24 respectively.

Allowable Subject Matter

- 8. Claims 17, 19 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
- 9. The following is a statement of reasons for the indication of allowable subject matter: The prior art cited in its entirety fail to render obvious dividing an energy value by an average to obtain the macro-blocks to represent the energy values in the foreground and background maps.

Art Unit: 2672

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6,411,326 Tabata

348/47

06/2002

05/1998

Stereo image display unit.

6,259,828

Crinon et al.

382/305

07/2001

01/2000

Sprite-based video coding system with automatic segmentation integrated into coding and sprite building processes.

6,205,260

Crinon et al.

382/284

03/2001

12/1997

Sprite-based video coding system with automatic segmentation integrated into coding and sprite building processes.

6,088,392

Rosenberg

375/240.03 07/2000

05/1997

Bit rate coder for differential quantization.

5,778,098

Lee et al.

382/236

07/1998

Sprite coding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

Art Unit: 2672

Page 9

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Motilewa A. Good-Johnson Examiner Art Unit 2672

mgj November 1, 2002

> MICHAEL RAZAVI SUPERVISORY PATENT EXAMINER TECHNOLOGY CENTER 2600